

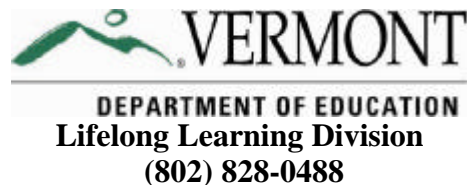
# **2009 Report on Act 154. Section 3**

## **An Act Relating to Agricultural, Forestry, and Horticultural Education; Animal Dissection; the Repeal of Burdensome Reports; Streamlining the Formation of Union Districts; Districts that Pay Tuition for All Students; and other Changes to Education Law: Agricultural, Forestry, and Horticultural Education**

Report/Recommendations to the House Committees on Agriculture, Education, Institutions and Corrections and the Senate Committees on Education, Economic Development, and Housing and General Affairs

**January 15, 2009**

**Submitted by:**





## SUMMARY OF RECOMMENDATIONS

### NO. 154. AN ACT RELATING TO AGRICULTURAL, FORESTRY, AND HORTICULTURAL EDUCATION Sec. 1-3

It is the intent of Secs. 1–3 of this act to enhance the ability of regional technical centers and secondary schools in Vermont to teach and prepare students for careers in agriculture, forestry, and horticulture and to determine what steps are necessary to prepare the next generation for involvement in these sectors of Vermont’s economy.

#### Recommendations and Next Steps

- Create a Statewide Industry Council to act as industry advocates to Agriculture, Forestry & Horticulture (A, F & H) educators, informing educators and administrators about emerging technologies, high demand A, F & H occupations, and other industry trends.
- Commission an A, F & H industry study to determine current labor information, future demand, wage/salary information, emerging technology and career fields.
- Require dual/concurrent enrollment opportunities statewide for regional programs in order to provide enrollment incentives for students to continue their education in Vermont and eliminate duplication of course material between secondary regional centers and post-secondary programs.
- Explore options for 2+2 Teaching Degree Program between post-secondary institutions with Agriculture degree programs and state colleges with teaching degree programs to expand the availability of agricultural educators within the state.
- Expand options for A, F & H educators to collaborate with nonprofit organizations, sending schools, and post-secondary institutions, to develop curricula that reflect current trends and enhance rigor of math and science offerings.
- Encourage A, F & H educators to take advantage of available funding to enhance programs.
- Identify a K-12 point person in the Department of Education to coordinate with the Agency of Agriculture to work on the expansion of Food and Farm curriculum initiatives to encourage lifelong consumer knowledge and awareness of career opportunities in A, F & H.
- Support agricultural education and Farm to School outreach initiatives at the Agency of Agriculture.
- Encourage increased mentoring programs between secondary students and middle school students. Look to the national FFA PALS program as well as existing instate programs as models.

## **NEEDS ASSESSMENT OF AGRICULTURE, FORESTRY AND HORTICULTURE EDUCATION IN VERMONT**

### **NO. 154. AN ACT RELATING TO AGRICULTURAL, FORESTRY, AND HORTICULTURAL EDUCATION Sec. 1-3**

It is the intent of Secs. 1–3 of this act to enhance the ability of regional technical centers and secondary schools in Vermont to teach and prepare students for careers in agriculture, forestry, and horticulture and to determine what steps are necessary to prepare the next generation for involvement in these sectors of Vermont’s economy.

Act 154, formerly known as H. 711, charged the Agency of Agriculture, Food and Markets (VAAFM) and the Department of Education (DOE) to perform a needs assessment of Agriculture, Forestry and Horticulture (A, F & H) education within Vermont and to make recommendations for existing programs. The goals stated were to enable the House and Senate to:

- Better understand the ability of Vermont schools to prepare students for A, F & H careers
- Examine the effectiveness of the organizational structures of these educational institutions
- Understand the reasons why some schools do not offer A, F & H education
- Explore the barriers to and opportunities for A, F & H career paths
- Look at options for providing statewide leadership on A, F & H technical and curriculum support
- Assess post-secondary teacher degree and certification programs
- Understand how other organizations within Vermont support A, F & H education
- Note opportunities to enhance A, F & H education through collaboration of secondary and post-secondary institutions.

The collaboration over the past six months between VAAFM and DOE consisted of a working day with recognized parties, meetings with identified non-profit organizations, three site visits, numerous one-on-one meetings and phone calls, and a literature review of related national and state reports. A breakdown of these meetings begins on page 10. This collaboration resulted in the following report:

#### **Current State of the Agriculture Industry in Vermont**

In the last decade, the total number of Vermont farms has declined from year to year. However, at the same time, the demand for locally produced foods has grown and certain segments of farming have grown. Over just three seasons we have seen our winter farmer’s markets grow from zero to nearly a dozen. In its 2007 report, the Vermont Sustainable Agriculture Council stated that “Vermont ranks number one of the 50 states, with more than five times the national

average, in direct sales per capita. This suggests that Vermont has a very strong culture of local food, and a foundation for expansion in this area.” Agricultural growth can also be seen in an increase in organic farms and artisan cheese makers. According to the Northeast Organic Farming Association the number of certified organic producers has grown by 169 farms since 2005. From 2007 to 2008 the number of artisan cheese makers grew by four, according to Diane Bothfeld at VAAFM. Even with this growth and expansion of our local food system no statistical information exists on workforce demand for such areas of agriculture or the high skill needs of such career fields. This lack of information makes it difficult for regional center directors to encourage expansion and enhancement of A, F & H programs.

Vermont’s thriving local food system is not the only potential growth area in agriculture. For example, the 25x’25 state and national initiative has a goal that 25 percent of our energy resources come from renewable resources by the year 2025. The 25x’25 initiative can only happen with an increase in agriculture renewable energy options such biofuels, biomass and farm methane. Since, renewable energy is still an emerging field it is difficult to predict the industry growth but a number of organizations are working on these initiatives, such as VAAFM, Vermont Department of Public Service, Vermont Sustainable Jobs Fund, Vermont Law School and the Vermont Council on Rural Development. Such organization should be included in any industry needs assessments that take place in the future.

## **State of Agricultural Education in Vermont**

### ***High School and Regional Center Programs***

There are two clear educational missions for schools addressing A, F & H courses and programs. All students could benefit from a rich understanding of Vermont’s agricultural heritage and the benefits of our local food economy. A portion of these students could find a particular passion leading to a lifelong career in the A, F & H economy.

Since 2006 student enrollment at regional center A, F & H programs has increased slightly by about 35 students and program numbers are sustaining. Educators at regional centers are supported by two statewide associations: the Vermont Agriculture Teachers Association (VATA) and FFA. Thirteen regional centers have courses of study that include A, F & H programs. Of those 13, eight have agricultural programs. The challenge is that the programs are at a plateau and do not necessarily reflect the workforce needs for Vermont’s 21<sup>st</sup> Century A, F & H economic sector. Labor data does not accurately reflect the self-employed business owners of the state and particularly presents a challenge for the agriculture economic cluster. New programming for the support of Vermont’s agricultural workforce must reflect the measured and anticipated needs of that workforce.

The typical agricultural program includes aqua culture, greenhouse technology, agricultural mechanics and maple sugaring. Many schools take part in entrepreneurial activities such as the Patricia Hannaford Center selling produce at their own farmer’s market and the Center for Technology, Essex, selling poinsettias during the holidays. Ag mechanics programs often include

converting diesel engines to accept straight vegetable oil and North Country Career Center recently added a course on alternative car technology.

Similar agricultural programs exist at some comprehensive high schools including Missisquoi Valley Union and Vergennes. The true numbers of courses outside the regional centers is difficult to track since the Department of Education does not regulate courses at local schools.

We are seeing an expansion of agricultural courses and services for high school students. These are sometimes in coordination with the regional center. Examples of a few of these offerings can be seen below:

- Harwood Union High School recently introduced an On Farm Apprenticeship Program. This elective program resulted from student demand and is allowing students to gain on- farm experience.
- Vermont Youth Conservation Corp (VYCC) is working to offer pre-tech agricultural and forestry programs at a number of high schools and regional centers and is also working on the creation of a green industry program for regional centers.
- Burlington High School is working to create an Edible Schoolyard program in partnership with Vermont Community Garden Network. High school students will work in on campus gardens and provide food for the school and mentor area middle school students.
- South Burlington School District is working to create a Farm Campus where high school and middle school students can learn about agriculture through hands on learning.

### **Farm-to-School**

Our state investment in the Farm-to-School Grant Program and the work of Vermont Food Education Everyday (VT FEED) has allowed Vermont to lead the way nationally in Farm-to-School initiatives. The VT FEED approach of restructuring the school food culture by integrating local food into the cafeteria, classroom and community has allowed almost 100 schools across our state to reconnect with local farmers. These programs are emulated nationwide and serve to educate students and the public on the benefits of farm and food curriculum.

Traditionally these programs have existed with our K-8 schools but are now expanding to high schools. At the high school level the Farm-to-School initiatives are often presented with education that focuses on sustainability.

### **Post-secondary Agricultural Education**

- Vermont Technical College (VTC) has created new offerings for their own students and high school students through their Center for Sustainability.
- Both VTC & UVM are restructuring programs and offering new programs based on renewed interest in agriculture.

- Other colleges are integrating sustainable practices as part of campus life including Green Mountain College Food & Farm Program and Middlebury College's goal of being carbon neutral by 2016.

### **State Government and Agricultural Education**

The "Rozo" McLaughlin Farm-to-School grants program has been facilitated by VAAFM since the program's creation in 2007. In 2008 VAAFM decided to expand this role by the hiring of an Agricultural Education Coordinator that focuses on Farm-to-School, Agriculture in the Classroom, Vermont Agricultural Youth Ambassador and other youth-centered programs.

Since this hire, VAAFM is working to refine the Farm-to-School grant program by keeping in closer contact with grant recipients to offer more support for their programs. The Agricultural Education Coordinator is also working with Farm-to-School partners, DOE, Department of Health, and VT FEED to create a statewide network for Farm-to-School programs to offer further support and create a unified voice for statewide Farm-to-School initiatives.

VAAFM is also partnering with the VT Foodbank, Department of Corrections and Community High School of Vermont on a community food project. The project's goals are to create onsite gardens, agricultural education opportunities at corrections facilities while providing food for the facilities and the VT Foodbank network.

### ***National Regional Center Challenges***

The challenges Vermont faces with respect to regional centers are not isolated to our state. Low test scores in math, reading, and science, the increased demands that accompany No Child Left Behind (NCLB) and changes in the expectations and accountability requirements for access to Perkins Regional Centers Federal Funding have put pressure on regional centers in every state. High school enrollment, in general, is declining. An existing stigma of technical education and the loss of unskilled jobs in the U.S. have created a need for this education to produce higher skilled graduates who are conversant across a broad base of skill sets. This shift signifies a change from outdated voc tech goals, which focused on unskilled and lower skilled labor. Compounding the difficulty is that regional technical center instructors often come from industry and not from within the teaching profession; a lack of U.S. teacher training programs for regional center fields is creating a shortfall of teachers to fill positions across the board at regional centers.

Strategies for reform on the state and national level are addressing many of these systemic and common problem areas and consist of the following:

- Federal and Vermont DOE required assessment development in all programs aligned to industry standards and employment demand, and industry certifications that establish particular criteria for career and technical education.
- Regional center education has been enhanced in other states by increased relationships with sending school faculty and post-secondary institutions. Examples of these improved relations exist in Wisconsin's new curriculum development program for Technical Agricultural Education and in Arizona's

decision to hire math and science educators to be part of the permanent faculty at every regional center. Vermont is also seeing added academic faculty at many regional centers.

- Increased collaboration with high school guidance and faculty in all schools within a district to provide individual career planning for every student starting in middle school and ongoing throughout high school and college.
- Elimination of duplication of learning from high school to college through articulation, curriculum planning, and dual enrollment; all offering reduced costs of higher education for student learning attained in regional centers/high schools as measured by the assessments developed above.
- Improved local mentoring programs for educators entering the technical education field; providing “master teachers” as mentors to new teachers.
- Increasing the opportunities for engaging business/industry and community stakeholders including parents.

While Vermont shares in these national trends, there are some challenges facing regional centers that are unique to our state.

- **The current funding structure puts regional centers at a disadvantage.** The CTE funding mechanism that is currently in place creates unintended consequences that hamper strengthening the working relationships between sending schools and regional centers. The funding structure needs to be reformed to eliminate financial disincentives for high schools to send students to regional centers.
- **Time and travel issues play a role in regional center challenges.** Currently, most regional center courses require students to commit to full- or half-day programs that are taught in the company of a single instructor. This requires regional center students to commit large blocks of time to programs of study and at times makes it difficult to split time between high school graduation requirements and other coursework a student might be interested in. Providing the capacity for regional centers to offer more academic credits toward students’ graduation requirements could provide relief from these competing pressures. In addition, it is more challenging to find co-op, internship and field trip experiences for students that can be accomplished during the regular school day.
- **Recruitment and retention of teachers is an ongoing concern.** Instructors are responsible for incorporating content-rich knowledge, skills, and pedagogy of their content area(s) as reflected in the *Vermont’s Framework of Standards and Learning Opportunities*, the Grade Expectations. Many of the A, F & H instructors come not from professional teaching backgrounds but instead from the industries themselves and lack the necessary training to fulfill expectations as



outlined above as well as the training needed to excel at day to day classroom management and curricula development. To address this, many regional centers have added academic integration faculty to their staff.

- Career center programs must align with post-secondary programs to provide seamless transitions for Vermont students. This will require intense collaboration and possibly significant curriculum revisions.

### ***Challenges for the A, F & H Education Fields in Vermont***

#### **➤ Lack of centralized organizational structures in A, F & H fields**

- The nature of agricultural pursuits is broadly based, mostly self-employed and entrepreneurial in nature. Few coalitions or associations within these fields can unify Agricultural industries or serve as a training ground for Ag leadership in the state with the exceptions of dairy and maple sugaring.
- The lack of industry voice and leadership retards information flow from industry sectors to student instructors and there is no practical way for educators to learn about current trends or new technology, let alone how to incorporate these new developments into their courses.
- Lack of statewide leadership for Ag educators results in weakened relationships between stakeholders.

#### **➤ Deficiencies in information flow regarding potential growth areas in A, F & H fields**

- In-depth discussion on actual needs is hindered by the lack of a comprehensive workforce demand study of the Ag industry.
- For reasons previously stated, this is an industry that lacks a unified voice, relies on self-employment and entrepreneurial initiatives and this makes it difficult to gather accurate labor data. Without this data educators are hampered by not knowing what to teach students to meet those demands.
- A clear vision of emerging markets, alternative energy production and industry trends would fill in this critical gap in knowledge and make education more responsive to industry demands.
- Parents and students are unaware of career opportunities in A, F & H sectors.
- Negative publicity influences parents and students in their choice of academic interest. As news of dairy farm struggles and farms closing down become widely reported, student and consumer negative reactions result in tainting the entire industry, shutting down interest in the field, whether some parts of the field are thriving or not.

#### **➤ Issues that impact educational planning and development**

- No teaching preparation programs exist specifically for agriculture in Vermont. For example, currently, no educational training programs have A, F & H fields as a focus of their training. The lack of teaching programs makes it difficult to find Ag educators to implement new programs or to find replacements for retiring teachers.

- Professional development opportunities specifically for instructors are limited. A comprehensive professional development plan to address academic integration, 21<sup>st</sup> Century skills and innovative instructional strategies should be created for A, F & H faculty.
- Dual/concurrent enrollment opportunities do not exist for A, F & H programs between post-secondary and secondary regional centers reducing their attractiveness to students and parents.
- Funds are available at the DOE to address innovative programming at regional centers. No Ag programs have applied for these funds in the past three years. Thus, this perceived lack of funding to strengthen A, F & H courses is partially a problem of perception.
- Recruitment and outreach to students is done center by center. Centers create programs based on trends of student interest, measured demand of industry and input from industry stakeholders. Centers should engage A, F & H industry stakeholders in program development initiatives.
- Weak connections between sending schools, regional career centers, post-secondary and non-profit organizations contribute to the lack of vitality in education within the A, F & H fields.
- “On-farm” opportunities for students are not incorporated into all A, F & H programs. Work-based learning is a critical element of CTE programs.
- Outreach and publicity on A, F & H careers must address the need to capture and grow student and parental interest in A, F & H fields. Publications should provide workforce and career data and provide a healthy perspective of the A, F & H careers in Vermont.

## **Conclusion**

The Agricultural, Forestry and Horticulture fields are in a state of progression which is taking place during a time of increased awareness within Vermont and nationally on the importance of environmental sustainability and the need to support and strengthen local industries. These changes are being echoed in the field of education where major shifts in educational goals are creating a platform for educating our youth in more sophisticated broad based 21<sup>st</sup> century skill sets. These skill sets emphasize problem-solving, creative thinking and collaborative interaction. When programs of study focus on these 21<sup>st</sup> century skills within the context of high skill and high wage or high demand occupational areas, the State’s workforce development needs are directly addressed and career/technical education serves services are a vital role within an economic revitalization model. However, without tangible data, the emergence of a unified agricultural industry voice and a network from which to join educators with developing A, F & H fields, Vermont is losing a valuable opportunity to educate and train students in the A, F & H fields.

There are many consumer-based agricultural courses being developed in our K-12 schools, often in partnership with non-profit organizations, that are making significant inroads in introducing A, F and H awareness to our youth in engaging ways. At this time we need to focus our efforts on

encourage expansion of these consumer-based agriculture courses and allowing seamless transition to the existing regional center programs.

In order to ensure continuing innovative growth of the A, F & H fields in our state, Vermont needs to strengthen its support for these fields and ensure that there is a partnership between the A, F & H industries and education throughout the state and at every grade level.

### **Partial list of meetings, site visits, materials and articles consulted in promulgating this report**

#### ***Meetings***

Coordinated jointly between Agency of Agriculture and DOE:

- Conference of Regional Center Directors & Instructors, FFA, VTC, VYCC and VT FEED in August, 2008
  - In attendance:
    - Dean Sterns, Director of River Bend Technical Center
    - Katy Sartwell, FFA National Coordinator
    - Chris Dutton, Program Chair VTC
    - Lynn Coale, Director of Patricia Hannaford Career Center
    - Anson Tebbetts, Vermont Deputy Secretary of Agriculture
    - Art Liskowsky, Director of Cold Hollow Career Center
    - Justin Poulin, Secretary of VT FFA Alumni
    - Dave Dence, Forestry Teacher at Southwest VT Career Center
    - Representative Will Stevens, Addison-Rutland-1
    - Tim Gustafson-Bryne, VATA President
    - Kim Porter, Representative for Senator Giard
    - Everett Harris, VT FFA Foundation
    - Mark Skakel, Natural Resources Teacher at Stafford Tech.
    - Twila Perry, Director of Tech Ed at Lyndon Institute
    - Bob Travers, Assistant Director of Center for Technology, Essex
    - Paul Haskell, Director of Vermont Futures
    - Bill Tabott, Acting Vermont Commissioner of Education
    - Joan Richmond-Hall, Professor at VTC
    - Kim Norris, Co-Director at VT FEED
- Conference of Non Profit/Community-based Programs in November 2008
  - In attendance:
    - Jane Clifford, Green Mountain Dairy
    - Dana Hudson, VT FEED and National Farm-to-School
    - Joseph Kiefer, Food Works and VT FEED
    - Ellen Berrings, Harwood Union High School
    - Kristen Getler, Harwood Union High School
    - Everett Harris, VT FFA Foundation
    - Tim Byrne, VT Ag Teachers Association
    - Kathleen Wanner, VT Farms and VT Woodlands
    - Kate Riley, NOFA-VT Farm to Community Mentor
    - Beth Holtzman, Women's Agricultural Network

Martha Edwards Manning, UVM Extension 4-H  
Sarah Kleinman, UVM Extension 4-H

Note: Two meetings were scheduled with the Vermont Agricultural Teachers Association and both were cancelled. A new meeting has been scheduled for January 30<sup>th</sup>.

***On-Site Visits***

- Hannaford Career Center
- Missisquoi Valley Union
- Harwood Union High School
- VYCC

***One-on-One Meetings***

- Parks & Rec Department
- New Farmer Network
- WAGN
- NOFA
- VYCC
- Vermont Agricultural Teachers Association President
- VT FEED
- Shelburne Farms
- Food Works
- FFA state president
- VTC

***Telephone Conferences and Outreach***

In addition to these in-person opportunities, multiple telephone and e-mail communications took place between the DOE, Agency of Ag and external and internal entities including the Department of Labor, numerous educational institutions, and state agricultural agencies from Maine, New York, Arizona and Wisconsin. Discussions also took place with federal agencies concerning broad-based agricultural education outreach.

***Written Materials***

Additional information was garnered by review of articles, testimony, and other publications from a large variety of sources, including the writings of many of the non-profit organizations listed above, testimony given before the Vermont Legislature on the state of A, F & H fields in Vermont and information supplied by the agricultural departments from other state governments.